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## **Automatic stereotyping against people with schizophrenia, schizoaffective and affective disorders**

Rüsch, N ; Corrigan, P W ; Todd, A R ; Bodenhausen, G V

**Abstract:** Similar to members of the public, people with mental illness may exhibit general negative automatic prejudice against their own group. However, it is unclear whether more specific negative stereotypes are automatically activated among diagnosed individuals and how such automatic stereotyping may be related to self-reported attitudes and emotional reactions. We therefore studied automatically activated reactions toward mental illness among 85 people with schizophrenia, schizoaffective or affective disorders as well as among 50 members of the general public, using a Lexical Decision Task to measure automatic stereotyping. Deliberately endorsed attitudes and emotional reactions were assessed by self-report. Independent of diagnosis, people with mental illness showed less negative automatic stereotyping than did members of the public. Among members of the public, stronger automatic stereotyping was associated with more self-reported shame about a potential mental illness and more anger toward stigmatized individuals. Reduced automatic stereotyping in the diagnosed group suggests that people with mental illness might not entirely internalize societal stigma. Among members of the public, automatic stereotyping predicted negative emotional reactions to people with mental illness. Initiatives to reduce the impact of public stigma and internalized stigma should take automatic stereotyping and related emotional aspects of stigma into account.

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Automatic stereotyping against people  
with schizophrenia, schizoaffective and affective disorders

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Automatic stereotyping against people  
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Abstract

Similar to members of the public, people with mental illness may exhibit general negative automatic prejudice against their own group. However, it is unclear whether more specific negative stereotypes are automatically activated among diagnosed individuals and how such automatic stereotyping may be related to self-reported attitudes and emotional reactions. We therefore studied automatically activated reactions toward mental illness among 85 people with schizophrenia, schizoaffective or affective disorders as well as among 50 members of the general public, using a Lexical Decision Task to measure automatic stereotyping. Deliberately endorsed attitudes and emotional reactions were assessed by self-report. Independent of diagnosis, people with mental illness showed less negative automatic stereotyping than did members of the public. Among members of the public, stronger automatic stereotyping was associated with more self-reported shame about a potential mental illness and more anger toward stigmatized individuals. Reduced automatic stereotyping in the diagnosed group suggests that people with mental illness might not entirely internalize societal stigma. Among members of the public, automatic stereotyping predicted negative emotional reactions to people with mental illness. Initiatives to reduce the impact of public stigma and internalized stigma should take automatic stereotyping and related emotional aspects of stigma into account.

Keywords: stigma, prejudice, shame, anger, semantic priming

## 1. INTRODUCTION

Stigmatizing attitudes toward people with mental illness are common (Angermeyer and Dietrich, 2006) and remain a burden for the stigmatized individuals as well as a major clinical and public health issue (Corrigan, 2005; Hinshaw, 2007; Thornicroft, 2006). Persons with schizophrenia and other mental illnesses are often exposed to public prejudice, and they may consequently come to internalize negative attitudes about their own group, frequently leading to self-stigma (Brohan et al., 2010). Self-stigma is typically associated with low quality of life (Rüsch et al., 2006), can create enormous pain for persons with mental illness and may undermine vocational functioning (Yanos et al., 2010).

Because overtly negative attitudes towards people with mental illness (and other minorities) have become less acceptable, such biases are often expressed in more indirect, yet nevertheless harmful ways (Bodenhausen and Richeson, 2010). In keeping with the possibility that attitudes can be expressed in quite subtle ways, researchers have become interested in automatically activated versus deliberately endorsed evaluations (Gawronski and Bodenhausen, 2006; Greenwald and Nosek, 2009; Wittenbrink, 2007). In the domain of stigma, this work suggests that negative reactions toward persons with mental illnesses can be activated automatically, potentially outside conscious awareness or control, and can influence a range of subsequent behaviors. Understanding these automatic evaluative processes and how they may differ from more thoughtful, deliberate evaluations is important for several reasons. First, automatic evaluations may be less susceptible to social desirability biases than explicitly reported attitudes; indeed, implicit versus explicit measures of the same attitude diverge more markedly in socially sensitive attitude domains like prejudice and stigma than in less sensitive domains (Nosek, 2007). Furthermore, self-

report measures are, by definition, limited to reactions that participants can consciously articulate, yet some kinds of evaluative reactions may be relatively opaque to introspection (Wilson, 2002). Finally, because of these differential sensitivities, automatic versus deliberate responses often independently predict outcome variables, again particularly in the domain of stigma (Greenwald et al., 2009).

Despite strong interest in both mental illness stigma and indirect measures of automatically activated attitudes, little research has brought the two strands together (Stier and Hinshaw, 2007). Two recent studies investigated automatically activated reactions toward mental illness among members of the public in the context of clinical care and anti-stigma initiatives (Lincoln et al., 2008; Peris et al., 2008). To our knowledge, however, only the pioneering study of Teachman and her colleagues (2006) investigated such attitudes among people with mental illness. This research revealed that automatically activated reactions to mental illness (relative to physical illness), assessed using the Implicit Association Test (IAT; Greenwald et al., 1998), did not differ between people with mental illness and controls; indeed, implicit attitudes were similarly negative in both groups (Teachman et al., 2006). The authors posited that the absence of group differences in the IAT suggested a lack of protective automatic ingroup bias among diagnosed individuals. Lacking such defenses, people with mental illness presumably internalized the negative societal views to which they were exposed. This account is certainly plausible; however, alternative accounts for equally negative IAT scores in diagnosed and non-diagnosed samples are also worth considering.

One alternate possibility arises from an inherent ambiguity of the IAT. The IAT uses reaction times to measure associations between a target category (e.g.,

Mental Illness) and an attribute category (e.g., Bad). An IAT using Bad (or a similar global evaluative term, such as “Unpleasant”) as an attribute category can therefore be considered an index of automatic prejudice (Greenwald et al., 1998). However, a global evaluative association, as assessed by the IAT, may not necessarily only reflect stereotype-specific negative associations (e.g., that the group is automatically associated with “bad” *because* it is associated with negative intrinsic qualities such as dangerousness, incompetence, etc.). This global evaluative association can also be influenced by associations between a group and non-stigmatizing negative attributes, such as oppression, historical injustice, or suffering (Arkes and Tetlock, 2004; Uhlmann et al., 2006). For the study of mental illness stigma, this suggests that a strong ‘Mental Illness-Bad’ association, as evinced by the IAT, could indicate that respondents harbor automatic prejudice toward people with mental illness; but it could also reflect that participants associate mental illness with the pain or suffering that often comes with having a mental illness, without automatically activating character-impugning negative stereotypes.

It is possible, however, to directly assess automatic stereotyping. The lexical decision task (LDT), which focuses on the speed with which respondents can identify particular letter strings as valid words, is one measure of automatic stereotyping (Wittenbrink et al., 2001). Of particular interest is the question of whether prior activation of a particular concept (such as “mental illness”) facilitates the identification of stereotypically-associated words (e.g., “dangerous”). By examining the ability of a given concept to facilitate recognition of both stereotypic negative words and equally negative but nonstereotypic words (e.g., “greedy”), it is possible to use the LDT to distinguish the degree to which specific stereotypic concepts versus global negative reactions are activated. LDT scores are not contaminated by

associations with non-stigmatizing negative associations (e.g., suffering) that could influence more global evaluative measures such as IAT prejudice scores. We expected that automatic stereotyping as assessed by the LDT would capture specific stereotypical associations with mental illness (e.g., danger) that may be prominent among members of the general public. However, whether automatic stereotyping would be observed among diagnosed individuals is a more open question. If it is indeed true that people with mental illness internalize the views of society at large, then perhaps they too will engage in automatic stereotyping. However, it may also be the case that the automatic negativity associated with mental illness in the minds of diagnosed individuals is driven more by non-stereotypic negative associations (e.g., pain, suffering, etc.) and that they are less susceptible, on average, to the expression of automatic stereotypes. The current study employed an LDT to assess the possibility of differential automatic stereotyping across groups.

It is important to examine the stigma processes that are linked to automatic stereotyping. Emotional aspects of stigma have long been neglected (Link et al., 2002, 2004). Appraisal models of emotion (Smith and Ellsworth, 1985) assert that cognitively assessed attributes of a target or situation give rise to ensuing emotional reactions. From this perspective, automatic stereotypes could play an important role in triggering emotional reactions to stigmatized individuals. Anger is a typical emotional reaction to people with mental illness that can lead to increased social distance (Angermeyer and Matschinger, 2003), coercion and reluctance to help (Corrigan et al., 2003). Shame, a central emotion in response to stigma in general (Hinshaw, 2007; Schmader and Lickel, 2006) and widespread among people with mental illness (Rüsch et al., 2007), can be an obstacle to help-seeking (Schomerus et al., 2009) and is associated with self-stigma and more dysfunctional reactions to stigma (Birchwood et

al., 2007; Rüsch et al., 2006, 2009a). The current study examined self-reported emotional correlates of automatically activated stereotypes and deliberately endorsed beliefs, both among members of the public and stigmatized individuals, focusing on anger and shame as two key emotions.

Our study was designed to examine two questions. First, will individuals with schizophrenia, schizoaffective or affective disorders exhibit less automatic negative stereotyping as assessed by the LDT than members of the general public? Second, is automatic stereotyping related to self-reported emotional reactions toward mental illness, such as anger and shame?

## 2. METHODS

### 2.1. Participants

We recruited 85 persons with mental illness (see Table 1 for demographic characteristics) from outpatient mental health service centers in Chicago as part of a larger study on mental illness stigma (Corrigan et al., 2010; Rüsch et al., 2009a, b, c, d, e, 2010a, b, c, d). Axis I diagnoses were made using the Mini-International Neuropsychiatric Interview (Sheehan et al., 1998) based on DSM-IV criteria. Twenty-three (27%) participants had schizophrenia, 22 (26%) schizoaffective disorder, 30 (35%) bipolar I or II disorder, and 10 (12%) participants had recurrent unipolar major depressive disorder. In addition, in the entire sample 33 (39%) subjects had comorbid current alcohol- or substance-related abuse or dependence. On average, participants with mental illness were first diagnosed about 15 years ago ( $M=14.9$ ,  $SD=10.2$ ) and had been hospitalized in psychiatric institutions about nine times ( $M=9.2$ ,  $SD=13.1$ ). We also recruited 50 members of the public, matched for age, gender and ethnicity to the diagnosed group (Table 1) and screened for any life-time or current axis I



disorder. An eighth grade reading level as assessed by the Wide Range Achievement Test (Wilkinson and Robertson, 2006) was required. All participants gave written consent after being fully informed about study procedures. The study was approved by the institutional review boards of the Illinois Institute of Technology and collaborating organizations.

-- Insert Table 1 about here --

## 2.2. Automatic stereotyping measure

The LDT was designed following the work of Wittenbrink and colleagues (Wittenbrink et al., 1997, 2001; Wittenbrink, 2007). During the task, category primes ('crazy' or 'sane') were subliminally presented, followed by target items that consisted of words or nonwords. The respondents' task was to quickly decide whether the target item was an actual word. In line with the extensive literature on conceptual priming effects (e.g., Neely, 1977), the logic underlying the task is that the stronger the mental association between the prime (e.g., 'crazy') and target items (e.g., 'dangerous'), the quicker a participant will respond. We chose the 'crazy'-prime as a vernacular term that is likely to activate typical associations that occur in naturalistic contexts. We used three primes in this study ('crazy', 'sane', and 'XXXXX' as a neutral prime) and four types of target items (Appendix 1: 12 adjectives reflecting negative stereotypes about mental illness; 12 general, non-stereotypical negative adjectives; 12 positive adjectives unrelated to mental illness; and 16 non-words). To obtain our target items, we first selected 12 negative adjectives representing common stereotypes about people with mental illness. Then, based on the results of a pilot study with 25 psychology students, we selected 12 positive and 12 non-stereotypical negative

adjectives, matched for valence (extremity), arousal, length and lexical frequency to the 12 stereotypical negative adjectives (Appendix 1).

Participants were asked to focus on a fixation cross, which appeared for 1000 ms and was immediately followed by a prime for 15 ms. The prime was overwritten by a masking stimulus ('XXXXX') for 250 ms, after which the target stimulus appeared and remained on the screen until participants responded. Immediately after the response, the next trial began. After eight practice trials, each of the three primes ('crazy', 'sane', 'XXXXX') appeared on 52 trials (12 positive, 12 general negative, 12 stereotypical negative adjectives, 16 non-words) in randomized order, resulting in a total of 156 trials.

To analyze response facilitation, we examined three contrasts (Wittenbrink et al., 1997, 2001; Wittenbrink, 2007). First, we determined whether the 'crazy'-prime facilitated responses to stereotypical negative items by subtracting the mean latency for stereotypical negative words when coupled with the 'crazy'-prime, from the mean latency for stereotypical negative words coupled with the neutral prime. The larger this difference score was, the more the 'crazy'-prime facilitated semantic access to stereotypical negative words. Second, we calculated the analogous facilitation score for the 'crazy'-prime and general negative words to determine whether the 'crazy'-prime also facilitated accessibility for general negative words. Finally, we examined whether the 'sane'-prime facilitated access to positive words by subtracting mean latencies for positive words when coupled with the 'sane'-prime from mean latencies for positive words when coupled with the neutral prime. To eliminate outliers, latencies faster than 150 ms and slower than three standard deviations above the individual's mean response time were deleted. Data were analyzed following an

inverse transformation ( Wittenbrink et al., 1997, 2001; Wittenbrink, 2007). For interpretive ease, we report mean LDT scores in milliseconds in Table 2.

### 2.3. Self-report measures

First, participants rated their attitude toward people with mental illness by responding to the sentence, “I think, people with mental illness are bad ... good,” scored 1 to 9, with higher scores reflecting more positive attitudes. Second, to assess emotional reactions, we had participants with mental illness rate the sentence, “I feel ashamed about having a mental illness” (1=not at all, 9=very much); as a parallel measure, members of the public rated the sentence, “If I had a mental illness, I would feel ashamed about having a mental illness” (1=not at all, 9=very much). To assess anger toward people with mental illness, we used the Emotional Reactions to Mental Illness Scale (ERMIS; Angermeyer and Matschinger, 2003). After reading a case-vignette about a man with schizophrenia, participants rated items (e.g., ‘I react angrily’) (1=disagree, 5=agree), with higher mean scores indicating angrier reactions.

## 3. RESULTS

### 3.1. Indirect measures and clinical-demographic variables

To examine a link between clinical or demographic variables and automatically activated negative reactions in the diagnosed group, we compared LDT scores among the four groups of subjects with schizophrenia, schizoaffective disorder, bipolar disorder and unipolar depression. Analyses of variance did not indicate significant group effects and all subgroup comparisons in post-hoc Scheffé tests were non-significant. Subjects with versus without substance- or alcohol-related disorders in the entire diagnosed sample did not differ in terms of LDT scores. We further

assessed correlations of LDT scores with age and years since illness onset, which were non-significant. We also compared LDT scores of men versus women and of black versus white participants with mental illness (those being the two largest ethnic groups in our study), without finding significant differences. Therefore, the following analyses were performed in the entire diagnosed sample, without subdividing it into clinical or demographic subgroups.

-- Insert Tables 2 and 3 about here --

### 3.2. Self-reported attitudes toward mental illness across groups

The groups did not differ in their self-reported attitudes toward people with mental illness. Both people with mental illness ( $M=6.2$ ,  $SD=1.8$ , 95%-CI 5.8 – 6.6) and members of the public ( $M=6.1$ ,  $SD=1.6$ , 95%-CI 5.6 – 6.5;  $T=0.34$ ,  $p=0.74$ ) exhibited a positive bias above the scale-midpoint of five. The groups also indicated similar levels of shame about their real (people with mental illness:  $M=3.8$ ,  $SD=2.6$ , 95%-CI 3.3 – 4.4) or potential mental illness (members of the public:  $M=3.7$ ,  $SD=2.6$ , 95%-CI 3.0 – 4.4;  $T=0.29$ ,  $p=0.78$ ). In terms of anger toward people with mental illness, the diagnosed group showed significantly more negative emotional reactions ( $M=1.9$ ,  $SD=0.7$ , 95%-CI 1.8 – 2.1) than did members of the general public ( $M=1.6$ ,  $SD=0.6$ , 95%-CI 1.4-1.8;  $T=2.52$ ,  $p=0.01$ ).

### 3.3. Indirect measure across groups

In the LDT, the 'crazy'-prime facilitated responses to stereotypical negative words more strongly among members of the general public than among diagnosed individuals (Table 2), indicating less negative stereotyping among people with mental illness. The finding was specific for stereotypical negative words; the groups did not

differ in the other two LDT facilitation scores ('crazy'-prime facilitating general negative words; 'sane'-prime facilitating positive words). Thus, although previous research suggested that there are equivalently strong automatic “mental illness-bad” associations in diagnosed versus undiagnosed samples (Teachman et al., 2006), we observed significantly less automatic stereotyping among diagnosed individuals than among members of general public.

### 3.4. Correlations between self-report and indirect measures

Among members of the general public, a stronger facilitation of stereotypical and general negative words by the ‘crazy’-prime in the LDT was associated with significantly more self-reported shame about their own hypothetical mental illness and with more anger toward people with mental illness (Table 3). LDT facilitation scores were not, however, related to a deliberately endorsed positive or negative attitude. In the diagnosed group, LDT scores were not associated with any of the self-report measures. Thus, automatic stereotyping, as indexed by the LDT, was related to emotional aspects of stigma in the public sample, but not in the diagnosed sample.

## 4. DISCUSSION

We examined automatically activated and deliberately endorsed attitudes toward mental illness, among individuals with schizophrenia, schizoaffective or affective disorders as well as among members of the public. That automatically activated reactions of stigmatized individuals were not associated with clinical or demographic variables suggests that our findings are not restricted to a particular diagnostic or demographic subgroup but may apply to people with serious mental illnesses, such as schizophrenia or bipolar disorder, in general.

Our results revealed markedly less negative stereotype-specific automatic reactions in the diagnosed group than in the public sample. This is a hopeful sign, because stigmatized individuals may be less likely to automatically internalize stereotypes about their group. Although Teachman and colleagues (2006) did not find evidence of differential automatic prejudice across diagnosed and undiagnosed samples, this may be due to the fact that their IAT-based measure of general automatic negative associations, the prejudice IAT, could have been influenced not only by stereotypical, but also by non-stereotypical negative associations with the target category (Uhlmann et al., 2006). Indeed, the two groups could have differed in the nature of the negative associations that ultimately led them to exhibit similarly strong “mental illness-bad” associations. In contrast, the LDT, as a specific measure of automatic stereotyping, is unlikely to be influenced by this ambiguity. Consistent with the idea that our observed effects were indeed attributable to stereotype-specific associations, we did not find any group difference in the facilitation effect of the ‘crazy’-prime for general, non-stereotypical negative or positive words.

One possible explanation for weaker automatic negative associations in the diagnosed group is that participants with mental illness are likely to have had frequent contact with other diagnosed individuals. Such contact has been associated with reduced mental illness stigma in general (Kolodziej and Johnson 1996), and it may specifically contribute to reducing stereotypic associations. For example, a person with schizophrenia may have formed automatic negative associations about people with mental illness, well before developing a mental illness her- or himself. Contact with other consumers, to the extent that it contradicts these erroneous negative expectations, may result in the reduction or unlearning of these associations. Conversely, members of the general public are much less likely to have had such

frequent contact; indeed, because individuals are reluctant to approach others about whom they have negative expectations, such expectations are particularly unlikely to be modified by new experiences when approach behavior (i.e., contact) is optional (Fazio et al., 2004). Future research should examine a possible link between the level of contact of members of the general public with diagnosed individuals and how this may change automatic associations.

Our finding of decreased negative automatic bias among people with mental illness is qualified, however, by greater self-reported anger-related prejudice toward their ingroup as compared to the anger expressed by members of the public. This unexpected finding suggests that people with mental illness may be susceptible to negative emotional reactions toward their own ingroup (or that they may be more willing to openly admit such reactions than members of the general public are). A useful direction for future research would be to examine non-self-report measures of affective reactions (e.g. Cohn et al., 2007; Quirin et al., 2009), to determine whether such indirectly assessed emotional responses diverge from self-reported ones.

We found partial support for the hypothesis that automatic stereotyping is linked to emotional reactions of shame and anger. Specifically, among members of the public, automatic stereotyping was related to shame and anger, but not to a general negative attitude. This result is in line with conceptualizations of automatically activated attitudes as being especially relevant for spontaneous and affective reactions and presumably less relevant for deliberately endorsed attitudes (Gawronski and Bodenhausen, 2006; Greenwald et al., 2009). However, automatically activated reactions were unrelated to self-reported attitudes in the diagnosed group. We can only speculate that the hypothesized link between automatic and self-reported reactions may be influenced by the way stigmatized individuals perceive their ingroup

which needs to be examined in future studies (Correll and Park, 2005; Rüsch et al 2009d).

Some limitations of this study should be noted. First, our data are cross-sectional and do not allow firm conclusions regarding causality. Second, we focused on the self-reported emotional reactions of shame and anger, but other aspects of stigma warrant inclusion in future studies. Third, we assessed attitudes toward mental illness in general and did not differentiate between, for example, schizophrenia and depression. Fourth, our diagnosed sample was not representative of people with mental illness because factors such as ethnic minority group membership, male gender, and serious psychiatric disorders were over-represented; the same limitation applies to the general public sample. Fifth, our conclusions are limited to persons with severe mental illness who participate in outpatient mental health services. Finally, the ‘crazy’-prime in our LDT is a pejorative term that differed from the more neutral category name ‘mental illness’ (as used in the IAT by Teachman et al 2006) and from ‘people with mental illness’ (as in the self-report measures in this study) and may be more likely to activate negative associations. Future research should examine how different primes and labels affect automatically activated negative associations.

In conclusion, our study provided further evidence that mental illness stigma can be automatically activated as well as deliberately endorsed. We found some hopeful evidence of a relative automatic protective ingroup-favoring bias among stigmatized individuals. This group difference does not imply, however, that people with mental illness were free of implicit stigmatizing attitudes or did not explicitly agree with negative stereotypes. Future studies should therefore investigate different aspects of automatically activated attitudes, explicit stereotype agreement and internalized stigma among people with mental illness. As far as efforts to reduce



public stigma are concerned (Corrigan and Penn, 1999), such initiatives could measure change of automatically activated versus deliberately endorsed stigma to assess intended changes more comprehensively (Lincoln et al., 2008). Our findings are further relevant to initiatives that aim to reduce internalized stigma and increase stigma resistance (Sibitz et al., 2010) among people with mental illness, using cognitive-behavioral (Knight et al., 2006; Link et al., 2002), narrative (Lysaker et al., 2010) or self-help paradigms (Clay et al., 2005). These attempts to reduce the impact of internalized stigma on individuals with mental illness could address more automatic aspects of self-stigma that might be especially relevant for spontaneous or non-verbal behavior, that are difficult to detect and verbalize and that are likely to undermine the quality of life (Rüsch et al., 2010a). Clinicians should therefore anticipate and try to address automatically activated negative reactions toward mental illness and their emotional and behavioral consequences, both in themselves, among members of the public and in people with mental illness.

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Table 1. Demographic variables across groups

	Persons with mental illness (n=85)	Members of the general public (n=50)	T or $\chi^2$ <sup>(a)</sup>	p
Age (years; M, SD)	44.8 (9.7)	45.0 (8.1)	0.11	0.91
Gender (% female)	32%	30%	0.05	0.83
Ethnicity (% African- American / Caucasian / Hispanic / Other or Mixed)	58 / 34 / 5 / 4	60 / 32 / 6 / 2	0.42	0.94

<sup>(a)</sup> Comparisons are  $\chi^2$  tests for proportions, or t-Tests for means across each row (two-sided)

Table 2. Lexical Decision Task (LDT)

	Persons with mental illness (n=85) M (SD)	Members of the general public (n=50) M (SD)	T	p
'crazy'-prime facilitating stereo- typical negative words, LDT <sup>(a)</sup>	-11 ms (99)	33 ms (134)	-2.32	0.02
'crazy'-prime facilitating general negative words, LDT <sup>(a)</sup>	16 ms (102)	5 ms (121)	0.88	0.38
'sane'-prime facilitating positive words, LDT <sup>(a)</sup>	9 ms (96)	-3 ms (68)	0.79	0.43

<sup>(a)</sup> T- and p-values are based on inverse-transformed data, for ease of interpretation  
mean values are reported in milliseconds



Table 3. Correlations between indirect and self-report measures (bold font for 50 members of the general public / normal font for 85 people with mental illness)

	People with mental illness are bad ... good <sup>(a)</sup>	I (would) feel ashamed about my mental illness <sup>(b)</sup>	Anger towards people with mental illness <sup>(b)</sup>
'crazy'-prime facilitating stereo- typical negative words, LDT <sup>(c)</sup>	<b>-0.18</b> / 0.08	<b>0.44</b> ** / -0.08	<b>0.32</b> * / -0.04
'crazy'-prime facilitating general negative words, LDT <sup>(c)</sup>	<b>0.04</b> / -0.14	<b>0.37</b> ** / -0.05	<b>0.30</b> * / 0.14
'sane'-prime facilitating positive words, LDT <sup>(c)</sup>	<b>-0.16</b> / 0.01	<b>0.08</b> / 0.03	<b>0.14</b> / 0.03

\*  $p < 0.05$       \*\*  $p < 0.01$

<sup>(a)</sup> Higher scores represent more positive attitudes

<sup>(b)</sup> Higher scores represent more shame and anger, respectively

<sup>(c)</sup> Lexical Decision Task, higher scores represent stronger facilitation effects of the 'crazy' or 'sane'-primes, respectively

## Appendix 1. Stimuli in the Lexical Decision Task

	12 stereotypical negative words	12 non-stereotyp. negative words	12 positive words	16 non-words	F <sup>(a)</sup>	p <sup>(a)</sup>
Stimuli for each category	childish, dangerous, guilty, harmful, helpless, incompetent, irresponsible, lazy, stupid, threatening, unpredictable, unreliable	annoying, boring, corrupt, deceptive, dominating, greedy, lying, selfish, shallow, superficial, uncompromising, unfair	accurate, admirable, ambitious, brilliant, considerate, cooperative, courageous, energetic, generous, gentle, honorable, pleasant	annny, deblosed, fappily, gamous, grestigious, hiberalized, joaked, lecent, nerfectionist, nostrective, rintisable, shirsty, sictuvate, strafty, tettintive, tolid	-	-
Length <sup>(b)</sup> M (SD)	8.8 (2.9)	8.1 (2.5)	8.9 (1.4)	8.3 (2.5)	0.38	0.77
Valence M (SD)	7.3 (0.8) <sup>(c)</sup>	7.6 (0.6) <sup>(c)</sup>	2.5 (0.3)	-	287.7	<0.001
Arousal M (SD)	4.8 (1.0)	4.8 (0.9)	4.7 (1.5)	-	0.01	0.99
Lexical Frequency <sup>(d)</sup> M (SD)	7810 (4099)	9632 (4873)	7713 (5099)	-	0.63	0.54

<sup>(a)</sup> Comparisons are analyses of variance for means across each row

<sup>(b)</sup> Number of letters per word

<sup>(c)</sup> Valence of stereotypical negative words versus non-stereotypical negative words, p=0.52 (Scheffé post-hoc test)

<sup>(d)</sup> Frequency rank according to [www.wordcount.org](http://www.wordcount.org), with a higher rank indicating a rarer word